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SECRET

PROPOSAL

FOR

SIGNAL FLARE STUDY

19 April 1960

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A need has arisen for a study and evaluation to be performed on all the presently available railroad signal flares of a thirty minute burning time. In addition to evaluating the red colored flares, one other color is also required. Since the visibility of green, which was suggested as a second color, is poor, we intend to substitute yellow burning flares if they are also commercially available.

It is intended to purchase samples of thirty minute flares in both colors from the various commercial manufacturers (four sources for the red flares and two for the yellow flares) and burn them under ambient conditions. A notation will be made of ease of ignition and burning time. Further samples will then be purchased on the basis of this initial investigation.

The new samples will then be divided into three groups. The first will be subjected to -20°F for five days, the second group will be heated at 110°F for five days. Both groups will then be removed and immediately tested, a note being made of the burning time of each flare. The last group will be set up in a pre-arranged pattern and ignited after dark, preferably during a period of no moon. The pattern will then be viewed from the air from a helicopter and the relative visibility of both colors determined from different heights and directions. Some simple means of shielding the flares from ground observation, at the same time increasing the visibility from the air, may be tried. This would be accomplished by placing the flare in a hole dug in the ground.

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The interior of the hole could then be lined with aluminum foil.

A schedule will be set up testing flares in batches of ten each, considering the following parameters: Manufacturers testing at three temperatures, ten minute submersion in water at ambient. In addition, a limited number of tests will be performed to ascertain burning time variations in wind and rain storm (simulated).

It is suggested that this program be written to cover a six months' working period.

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COST ESTIMATE

80 hrs. Engineering Labor @ $4.50		$ 360.00
220 hrs. " " @ $3.00		660.00
	Sub Total I	$ 1,020.00
Overhead @ 122%		1,244.00
	Sub Total II	$ 2,264.00
Materials & Purchased Parts		600.00
Rental of helicopter (two tests)		180.00
	Sub Total III	$ 3,044.00
G & A @ 5%		152.00
	Sub Total IV	$ 3,196.00
Fee @ 8%		256.00
	Total	$ 3,452.00

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